AerPOS

User's Manual

Version-0.5

AP-3435
15” Bezel Fanless POS system

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Record of Revision

Date	Specs Ver.	Description	Note
	V0.1	Initial	
	V0.2	System Back Cover Installation Notice	
2012/12/13	V0.3	Touch Utility Update	Raydium
2013/05/11	V0.4	CashDrawer Provides Linux Sample code	Vince
2013/06/26	V0.5	P-CAP touch updates	Vince

Safety and Warranty

1. Read these safety instructions carefully.

2. Keep this user's manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.

4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.

5. Keep this equipment away from humidity.

6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.

7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.

8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.

10. All cautions and warnings on the equipment should be noted.

11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.

12. Never pour any liquid into an opening. This could cause fire or electrical shock.

13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.

14. If any of the following situations arises, get the equipment checked by service personnel:
a. The power cord or plug is damaged.
b. Liquid has penetrated into the equipment.
c. The equipment has been exposed to moisture.
d. The equipment does not work well, or you cannot get it to work according to the user’s manual.
e. The equipment has been dropped and damaged.
f. The equipment has obvious signs of breakage.

15. DO NOT LEAVE THIS EQUIPMENT IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20°C (-4℉) OR A BOVE 60°C (140°F). IT MAY DAMAGE THE EQUIPMENT.

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Chapter 1

Introduction

AerPOS (AP-3435) Introduction

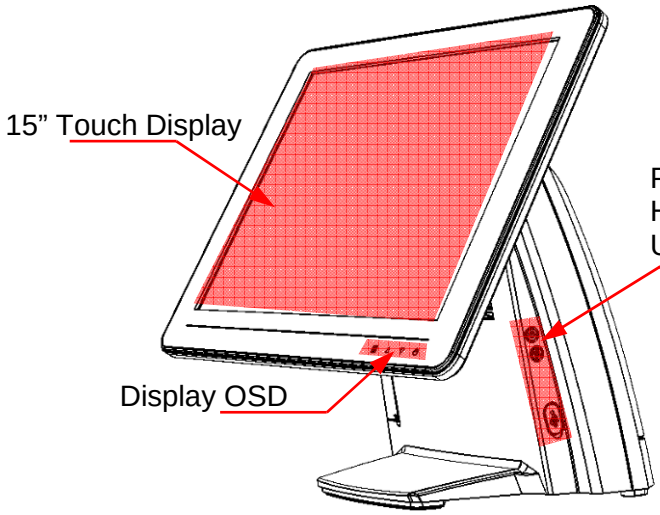
Bezel Free AerPOS series reaches design concept of the Total Cost Ownership and balance the strong requirement for POS quality, AerPOS is implemented with Quality-Oriented, Space-Effective, Fanless Energy Saving. AP-3435 also provides a decent choice for noise-free environment applications with optimized product reliability.

Main Features:

- The high quality of resistive touch or durable tempered glass of projective capacitive touch both are IP65 front panel compliant.
- Fanless solution for noise-free environment, mobile platform for green and energy saving.
- Modularized Design and Easy Maintenance for system parts, such as SATA storage, and RAM…etc.
- Various peripheral devices support and sufficient I/O connectivity requirements.
- Integrated VFD and the 2nd 15” / 11.6” LCD display.

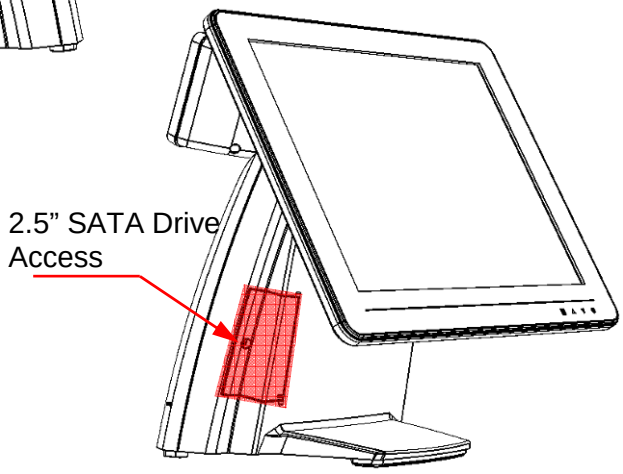
AP-3435 with MCR

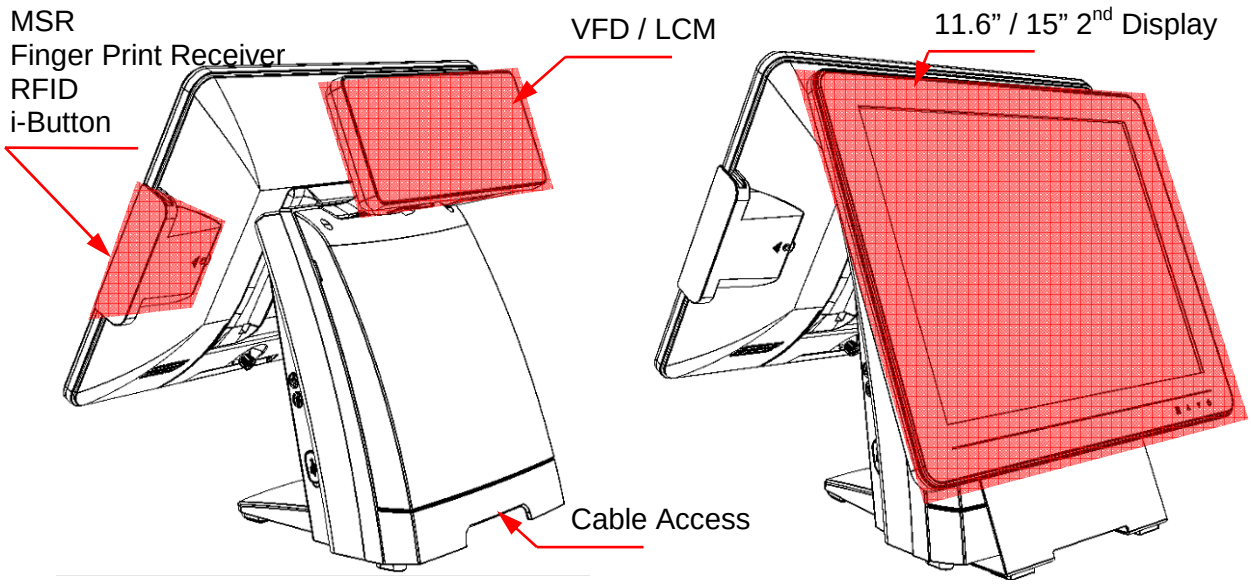
A Quick Tour for AP-3435



Power Switch / Status
Blue LED: Power ON
Red LED: Power Off / Standby

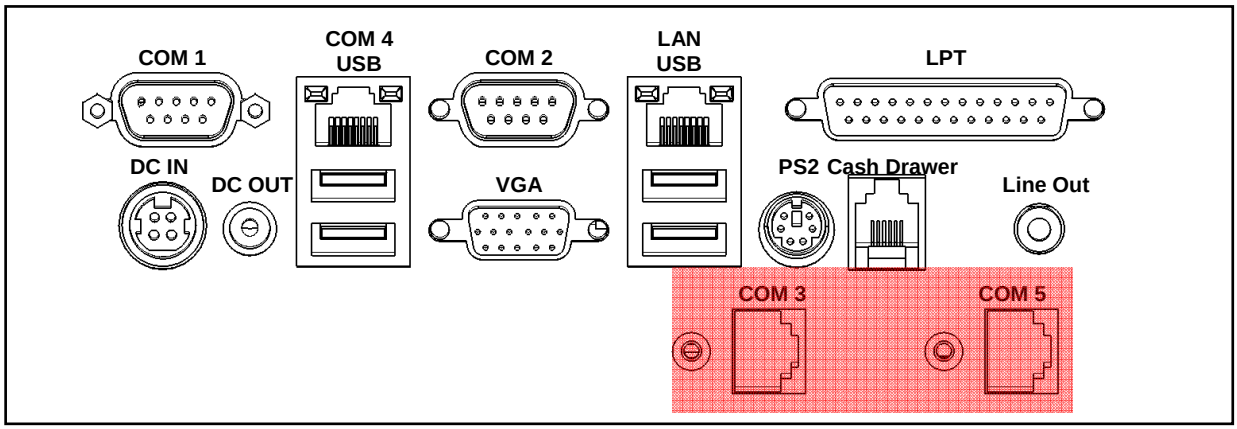
HDD / SATA Status
Orange LED: Operation





AP-3435 Dimension

Rear I/O Panel Connectivity



I/O Port	Connector Type	Description
COM 1	D-sub 9	Serial port COM 1
DC IN	DC IN connector	Connect the 12V power adaptor to this port
DC out	DC out connector	12V DC out put connect to 12V peripherals or devices
COM 4	RJ-45	Serial Port COM 4
USB	A type USB	Connect to standard A type USB devices
COM 2	D-sub 9	Serial port COM 2
VGA	D-Sub 15	Connect 2nd LCD screen or CRT monitors
LAN	RJ-45	Connect to Ethernet
USB	A type USB	Connect to standard A type USB devices
LPT	D-sub 25	Standard LPT (Parallel port) connector for printers or KeyPro solution
PS/2	PS/2 connector	Connect the keyboard or mouse to this port
Cash Drawer	RJ-11	Connect to 12V Cash Drawer
Line Out	Earphone connector	Connect the speakers to this port
Optional IO ports are recommend to be pre-installed in FEC factory		
COM 3	RJ-45 (optional)	Serial Port COM 3
COM 5	RJ-45 (optional)	Serial Port COM 5

Aer POS AP-3435 Packing List

Standard		Optional & Peripherals	
1	15” AP-3435 AerPOS Touch Terminal	**1**	COM 3 / COM 5 optional Com Port
2	12V 90W Power Adaptor	**2**	RJ-45 to D-sub9 Convert Cable
3	AC Power Cable	**3**	MSR / RFID / Finger Print Receiver I-Button
		4	20x2 VFD / 20x2 LCM / 240x64 LCM
		5	15” / 11.6” 2nd Display Bracket
		6	Wireless Lan Module

Chapter 2

Hardware Installation and Upgrading

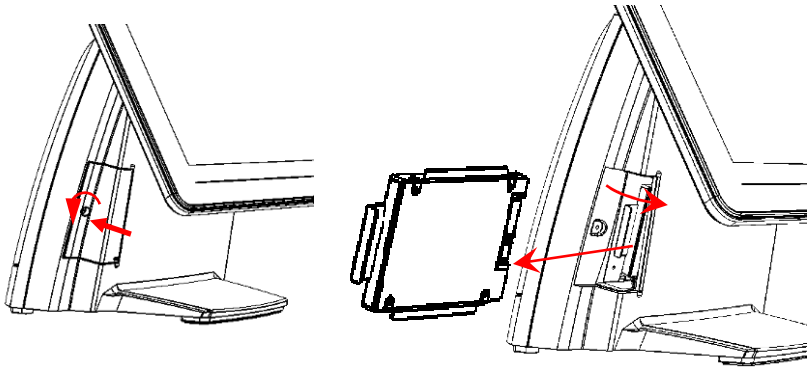
Do not remove the Display Module without switch off the terminal. Power must be switched off and power cord must be unplugged. Every time you service the system, please be aware of this.

2.5” Hard Disk Drive Installation

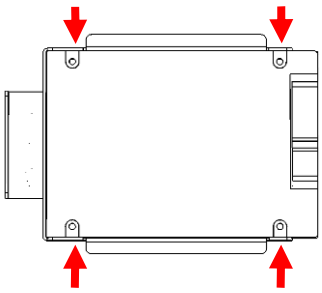
1. **Turn off power and remove power cord from the terminal**

2. **Unscrew the maintenance door at the front side of the terminal body**
3. **Flip the maintenance door and Extract 2.5” SATA storage bracket out**

   (no cable connected)



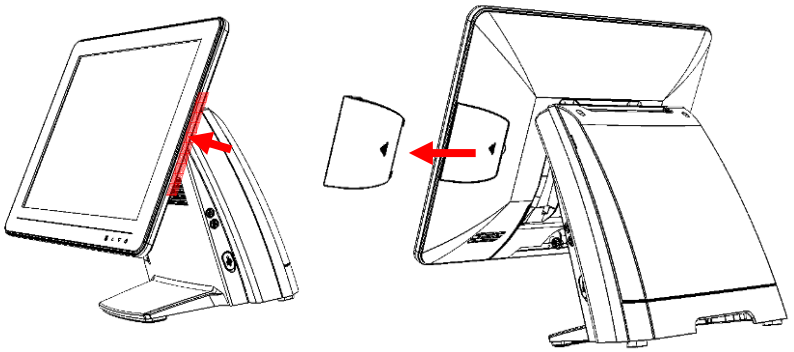
4. **Place storage driver on the bracket and fasten it with 4 screws.**



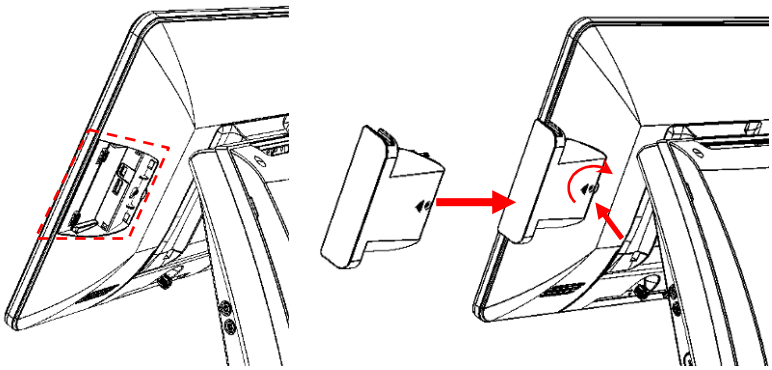
5. **Restore the maintenance door to the system.**
6. **Fix the maintenance door with a screw.**
7. **Connect power cord to the system.**

MSR / Finger Print Reciever / RFID / iButton Installation

1. **Remove the plastic cover at the back of Touch Display Module**



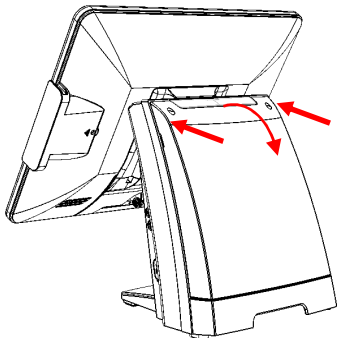
2. **Insert the MSR / RFID / Finger Print Receiver / I-button Module into USB A-Type Connector. Fix the Touch Display Module with one screw.**

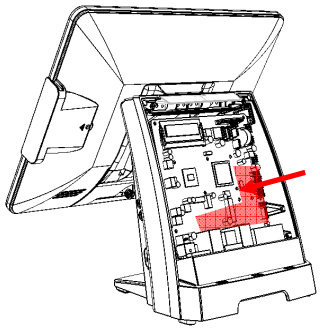


3. **Make sure the USB connected and screw is fastened well.**
4. **If you are looking for the detail Utility of MCR, Finger Print Reader, I-button Reader, RFID Reader, please contact FEC's FAE.**

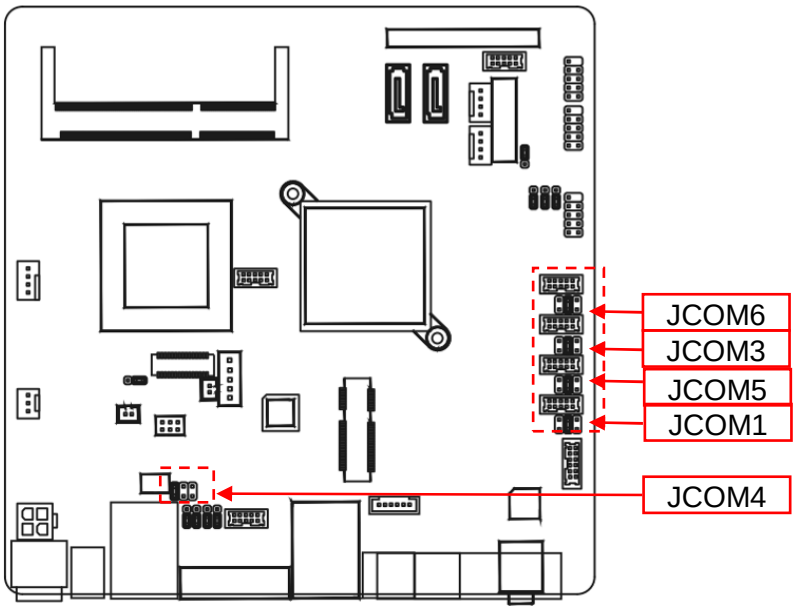
COM Port Power Setting

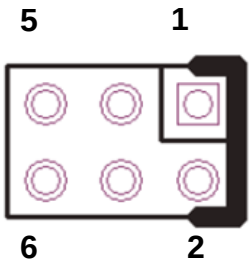
5. **Remove back cover of the terminal by two screws on the top side**





6. **Select COM port Power by jumper**



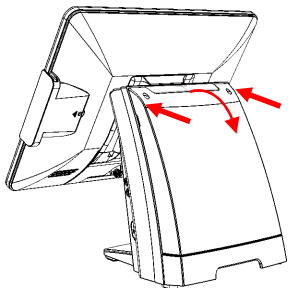


Pin	Definition
1-2 Short	5V
3-4 Short	RI
5-6 Short	12V

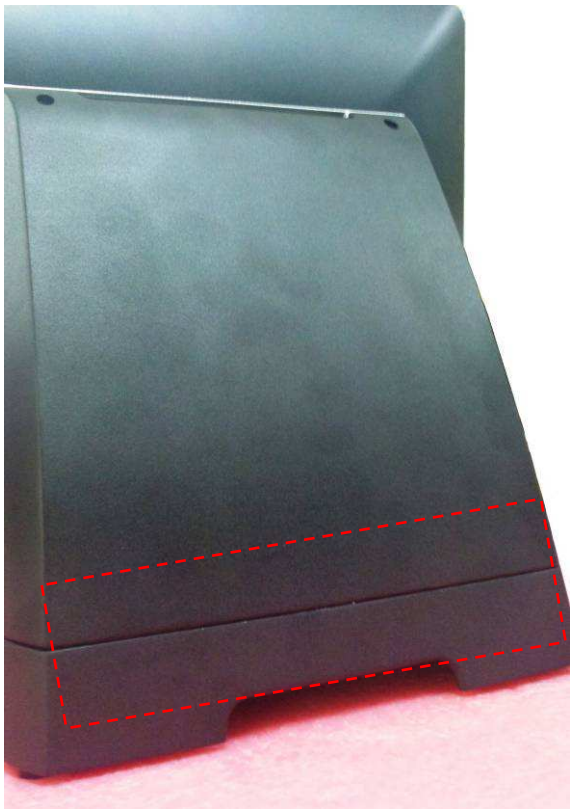
3. Please aware Pin1 location and make sure the correct power voltage is selected for serial devices.

Back Cover Installation Notice

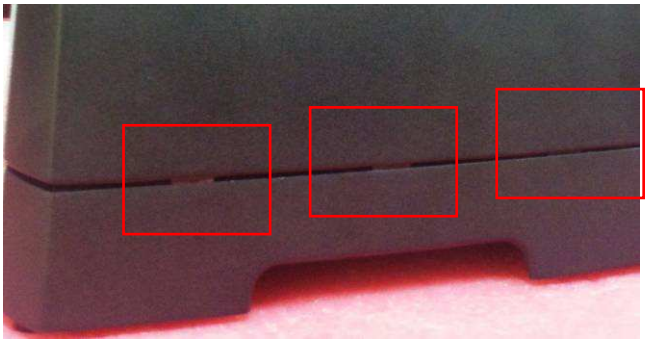
According to the Thermal Reliability, please ensure the "Hooks of Back Cover" are well assembled into the terminal main chassis during the remove and re-installation back cover.



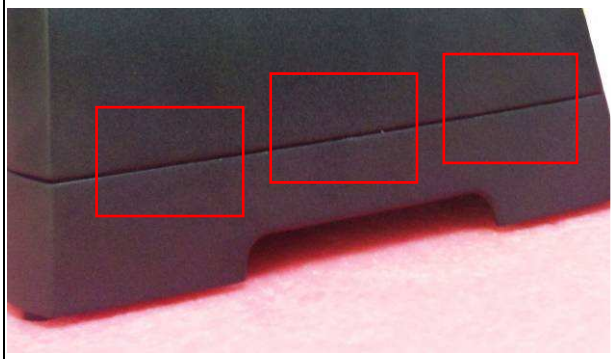
(Wrong)



(Correct)



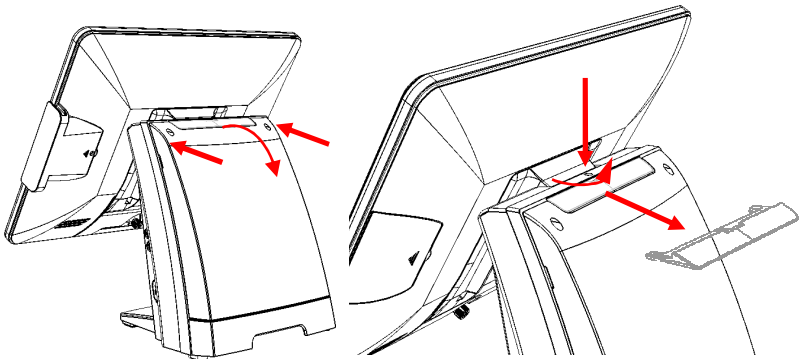
(X) (Wrong)



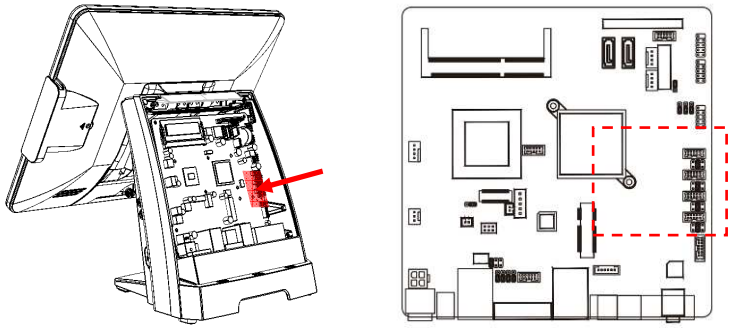
(O) (Correct)

Integrated VFD / LCM Installation

1. **Remove the VFD Plastic cover and Back Cover on the terminal**



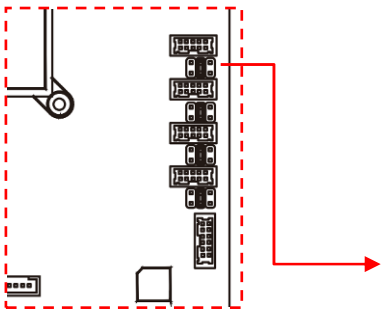
2. **VFD is connected to the COM6**



3. **VFD is connected to the COM6 (COM6 has internal power which has been pre-set as 12V power)**

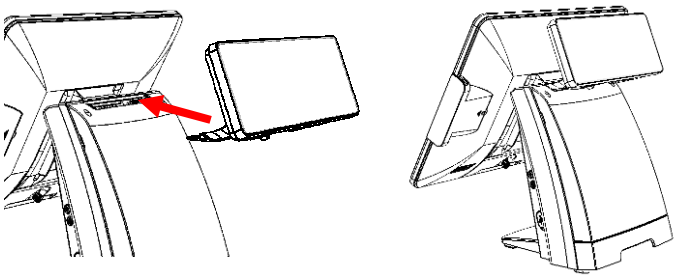
   **** Please note When VFD/LCM is integrated, please remove the external COM3 from the Rear IO to prevent the serial devices are conflict with each other by using the same COM 3.**

4. **Make sure 12V is selected for COM6 (please aware Pin1 location)**

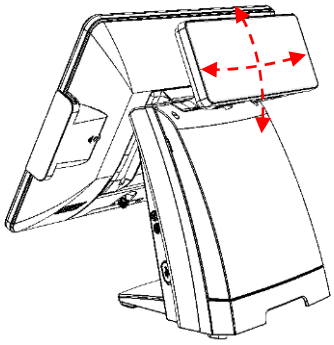


Pin	Definition
1-2 Short	5V
3-4 Short	RI
5-6 Short	12V

5. **Connect the COM 6 internal cable between Terminal and VFD / LCM Module and install the VFD/ LCM module with Terminal. Fasten one screw back and make sure VFD/LCM module is fixed.**

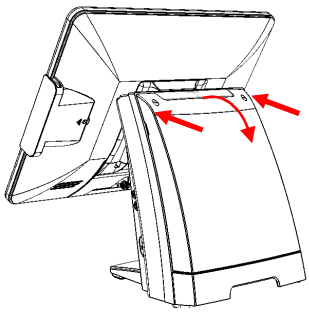


6. **Tilt and Adjust the VFD / LCM angle into proper position.**

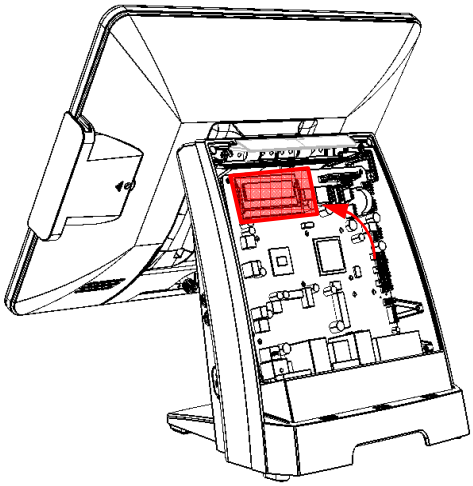


Memory (DDRIII RAM) Installation

1. **Unfasten and remove the back cover**



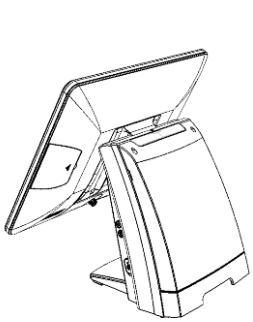
2. **Install DDRIII memory**

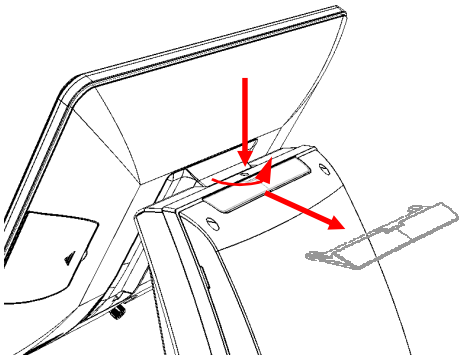


3. **Before restore the top cover, please check the thermal pad stays in the same position**

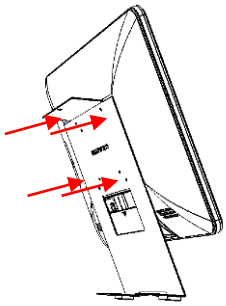
15” / 11.6” 2nd Display Installation

1. **Remove the VFD plastic cover**

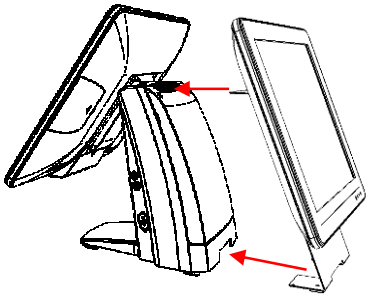




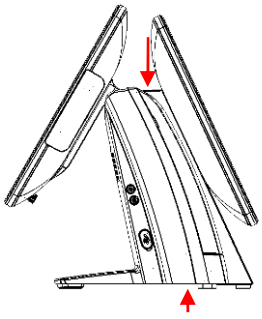
2. **Assemble the 2nd screen with bracket with 4 screws**

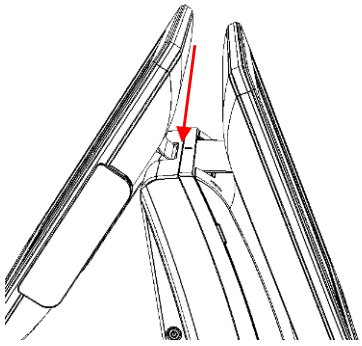


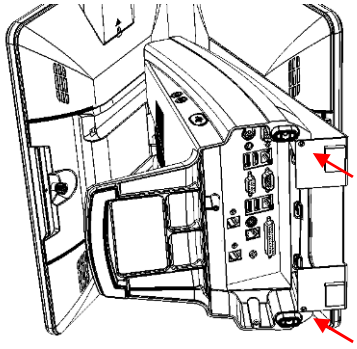
3. **Assemble the 2nd Screen with bracket to Terminal.**



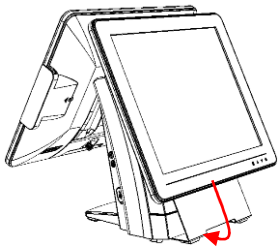
4. **Fasten 3 screws**
   (1 on top, 2 underneath)

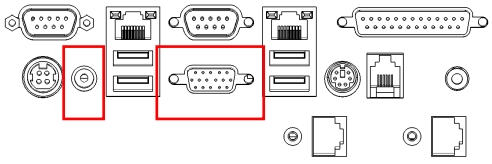






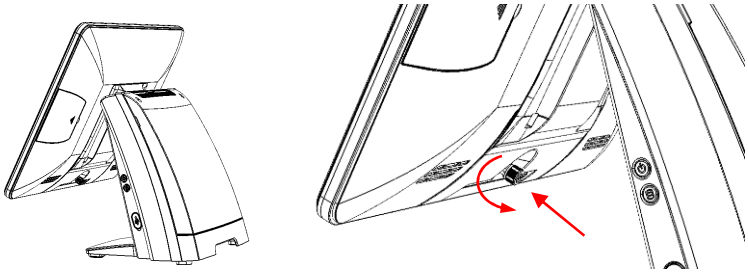
5. **Plug in VGA and DC 12V cables**



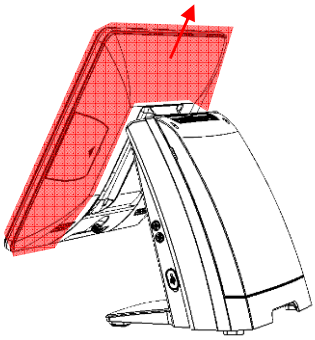


15” 1st Touch Display Installation & Swapping

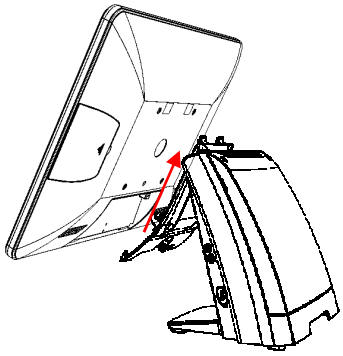
1. **Release 1 thumb screw at the back side of Display**



2. **Lift the Display Module up to disassemble from the main unit of terminal**

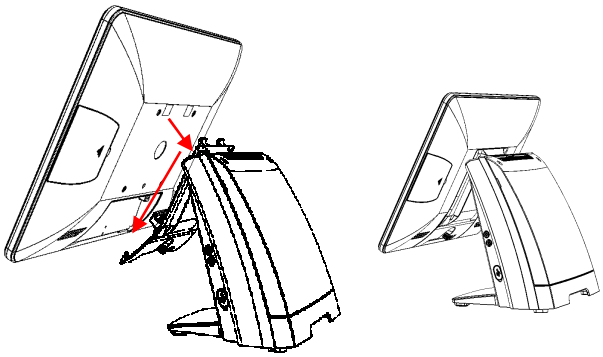


3. **Display and main body units are separated.**



4. **Reverse the process can assembly back the Touch Display Module.**

   **** please make sure the touch display module is firmly connected to the docking slot ****

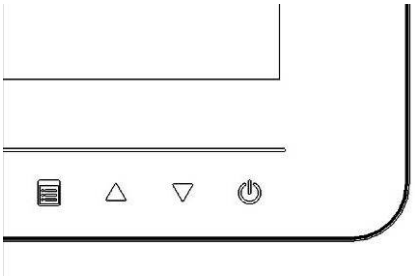


****Note****

During the process of disassembly and installation, please ensure the terminal is “Power Off” and remove AC. “Hot Swap” could activate internal protection to block touch display functionality.

OSD Function and Adjustment

OSD function and adjustment



Back Light Power (finger touch for 2 seconds)
Back Light Power On – Blue LED indication
Back Light Power Off – Red LED indication

Button Down (finger touch for 2 seconds)
Back Light Dimmer Down

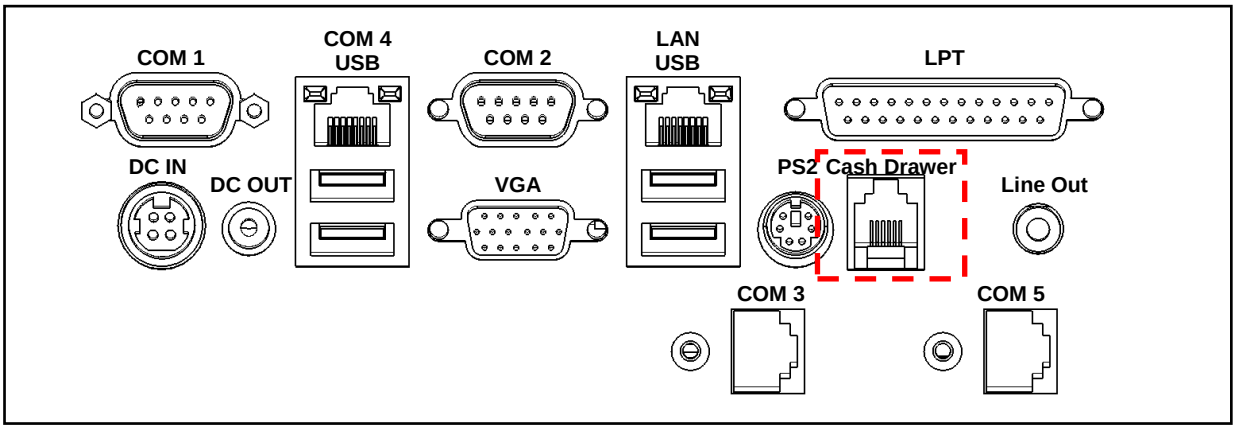
Button Up (finger touch for 2 seconds)
Back Light Dimmer Up

No Function / Reserve Function for AerTouch Monitor

Cash Drawer Installation

Before connecting the cash drawer to the **AP-3435**, please make sure the drive voltage and cable pin assignment of the cash drawer matches the definition of the cash drawer port of **AP-3435**. Please refer to the jumper setting and pin definition for FH-5251 MB Manual.

Note: If the cash drawer cannot be detected by the system, please refer to trouble shooting.



Up to two cash drawers may be driven from this port. Driving voltage of the solenoid is DC+12V. I/O port 284 is used for drawer operation. A test program is supplied, for Linux and Windows, sample code of which is available on request by software developers.

Value	Description
0x284	Output address.
0x284 read 8bit	Bit 2 => 0: low 1: high
0x200	Sleep 200ms
0x01	Open cashdrawer1 value.
0x02	Open cashdrawer2 value.
0x04	Close cash-drawer value.
0x04	Cash-drawer status mask.

Chapter 3

Software Installation and Setup

AP-3435 comes with a variety of drivers for different operating systems.

You can download all the necessary drivers and utilities from http://www.fecpos.com.

Please follow this installation sequence.

Driver installation sequence:

SMbus Driver-> Chipset Driver -> VGA Driver -> LAN Driver -> Audio Driver -> Touch Tools

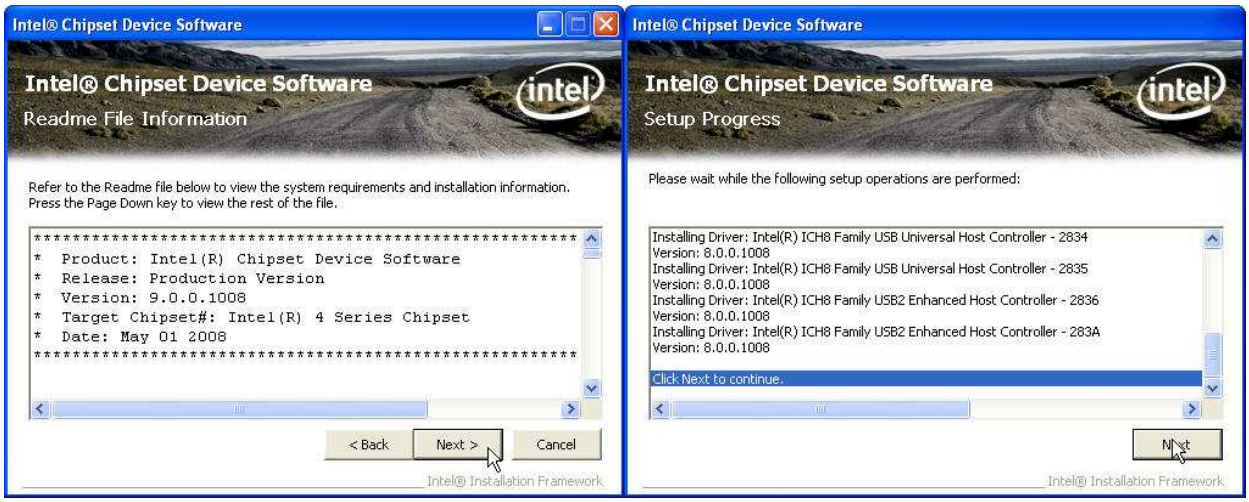
SMbus Driver Installation

SMbus Driver Installation for Windows XP

1. Download drivers from FEC website or insert the Driver CD into your CD ROM Drive.
2. Double click **Setup.exe**, and Click **Next** to start driver installation

3. Click **Yes** for license agreement

4. choose **Next** for the following steps



5. **Finish** and **Restart** system.

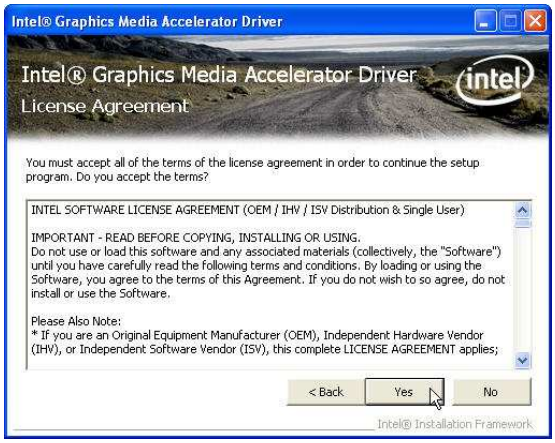
Chipset Driver Installation

Intel ATOM D525 Chipset Installation Utilities for Windows XP

1. Download drivers from website or insert the CD into your CD ROM Drive.

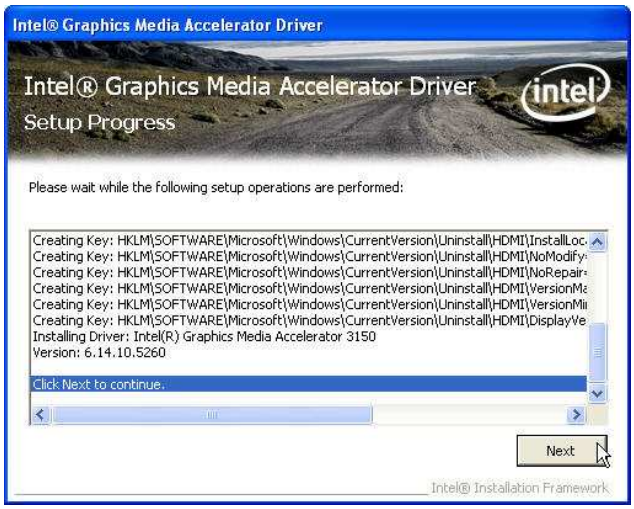
2. Open **Setup.exe** and Click **Next**.

3. Read the License Agreement and click **Yes**.



4. Click **Next** and the drivers for the Intel Chip set will install.

5. Please wait while the setup program processing.



6. When the 'Setup COMPLETE' message appears click **Finish** to restart your computer.

VGA Driver Installation

GMA3150 driver installation for Windows XP

1. Download drivers from website or insert the CD into your CD ROM Drive.
2. Execute **Steup.exe**

3. Select **Next** and click Yes of License Agreement Page.

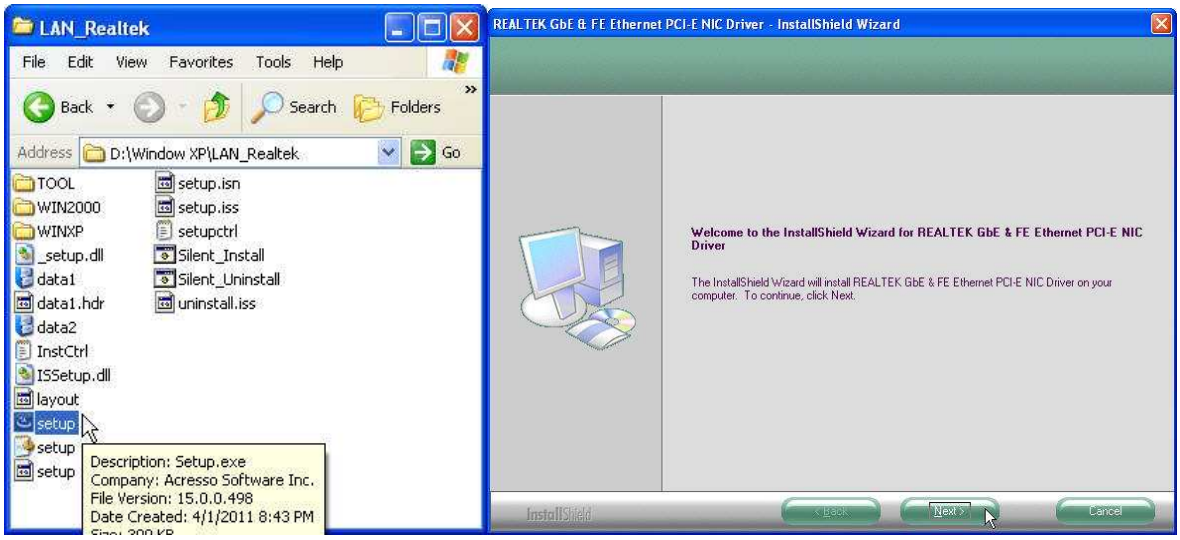
4. Select **Next** to continue driver installation.

5. Finally, **Finish** and **Restart** the system

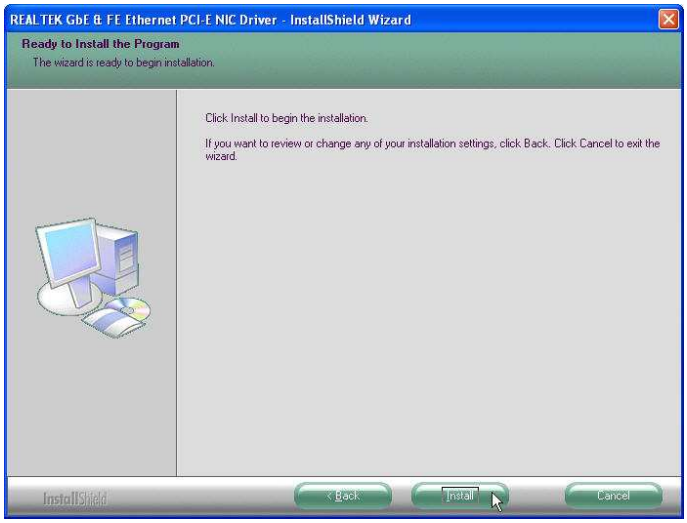
LAN Driver Installation

Realtek RT8111E LAN Driver Installation for Windows XP

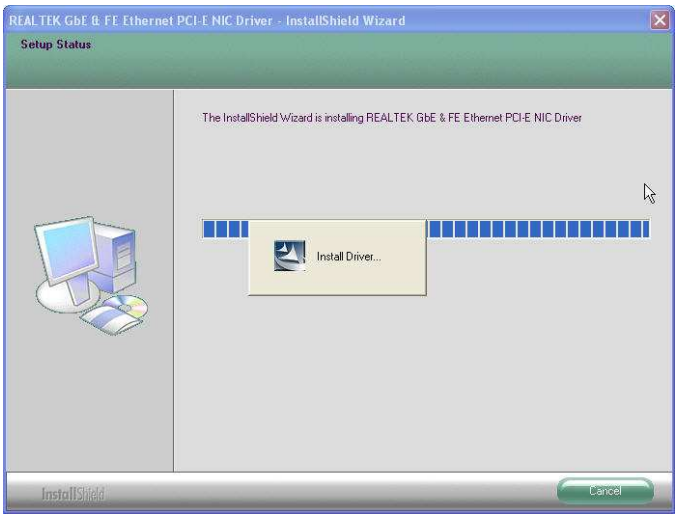
1. Download drivers from website or insert the CD into your CD ROM Drive.
2. Execute **Setup.exe**.



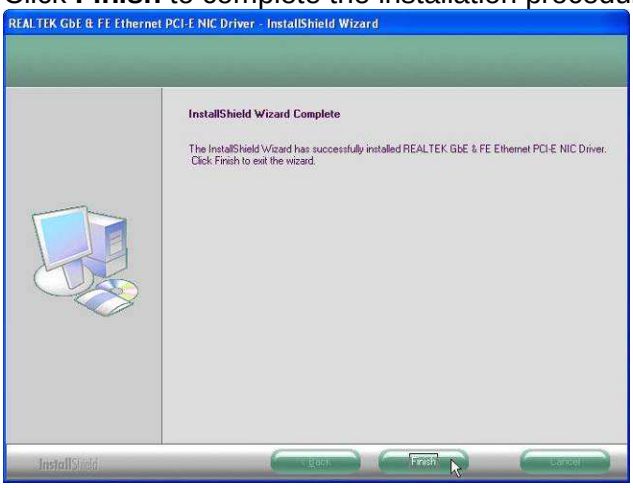
3. Click **Next** to continue



4. Please wait while processing.



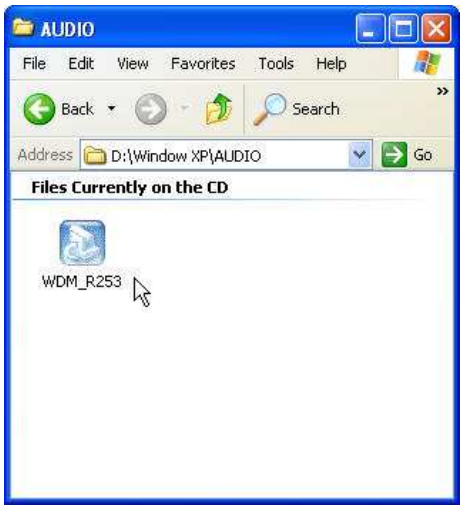
5. Click **Finish** to complete the installation procedure.

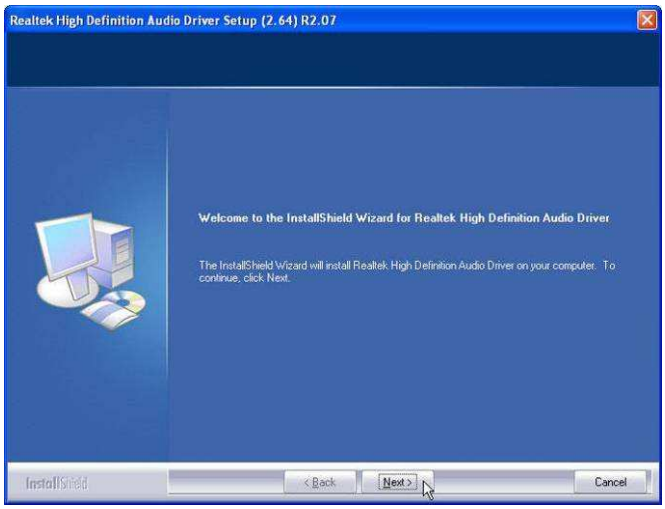


Audio Driver Installation

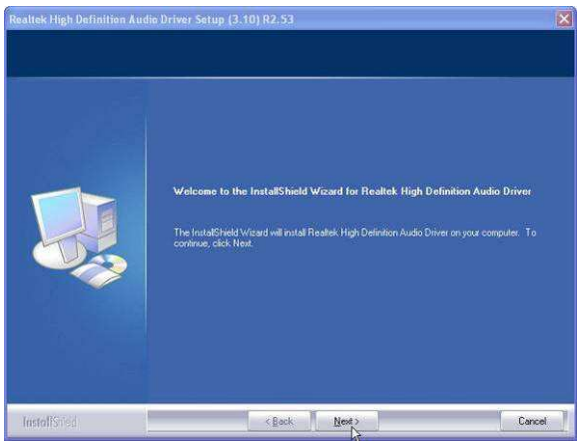
Realtek ALC269 Audio Driver Installation for Windows XP

1. Download drivers from website or insert the CD into your CD ROM Drive.
2. Double click **WDM_R253.exe**.

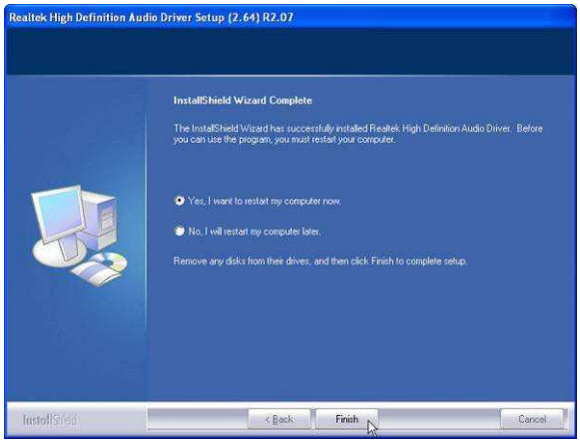




3. Click **Next** to continue.



4. Click **Finish** and restart the system.



FEC AUO Project–Capacitive Touch Utility

(Raydium controller)

FEC Projective – Capacitive Touch Utility Introduces:

1. **Activate Calibration**
2. **Mode of FEC Capacitive Touch Panel and default settings**
3. **Capacitive Touch User Configuration**
4. **F/W Reading or F/W Update**
5. **Touch Function for Second Screen**

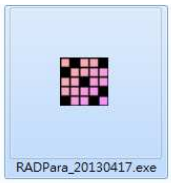
Activate Calibration

There are two different methods to do the calibration: (1) OSD on/off, (2) Utility Calibration

1. OSD on/off

The FEC P-CAP touch is Auto Calibrating during the Terminal boots up or power on the display. **Please note: during the process of touch auto calibration, keeps finger touches or other metal parts from the touch panel for 10 seconds until the calibration is finished.**

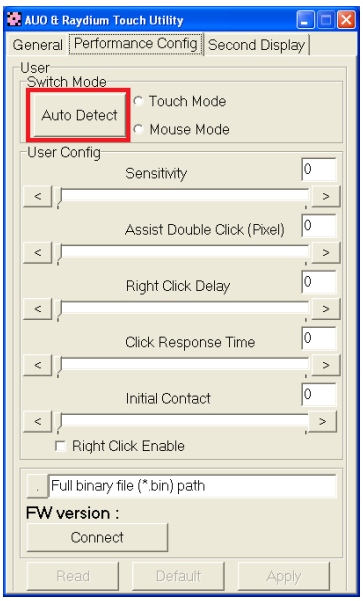
2. Utility Calibration

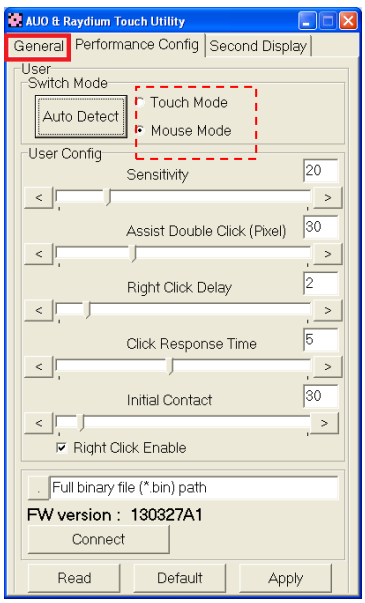


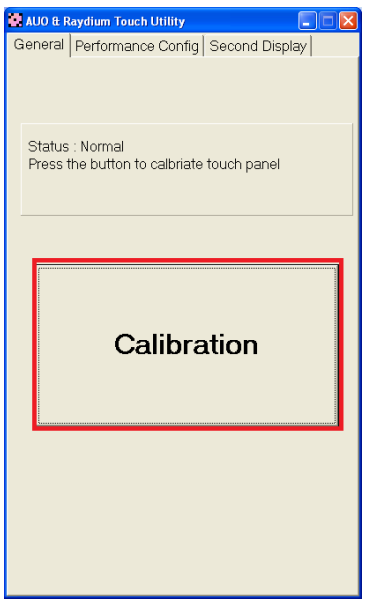
"RADPara_20130417" Utility is able to run within windows XP and windows 7 OS environment

1. Execute Touch Utility "RADPara_20130417"
2. Click "Auto Detect" wait for 10 sec for connection between Touch Utility and Touch Controller, until Touch or Mouse Mode shown.
3. Click "General" and press Calibration.

Please note: during the process of touch auto calibration, keeps finger touches or other metal parts from the touch panel for 10 seconds until the calibration is finished.







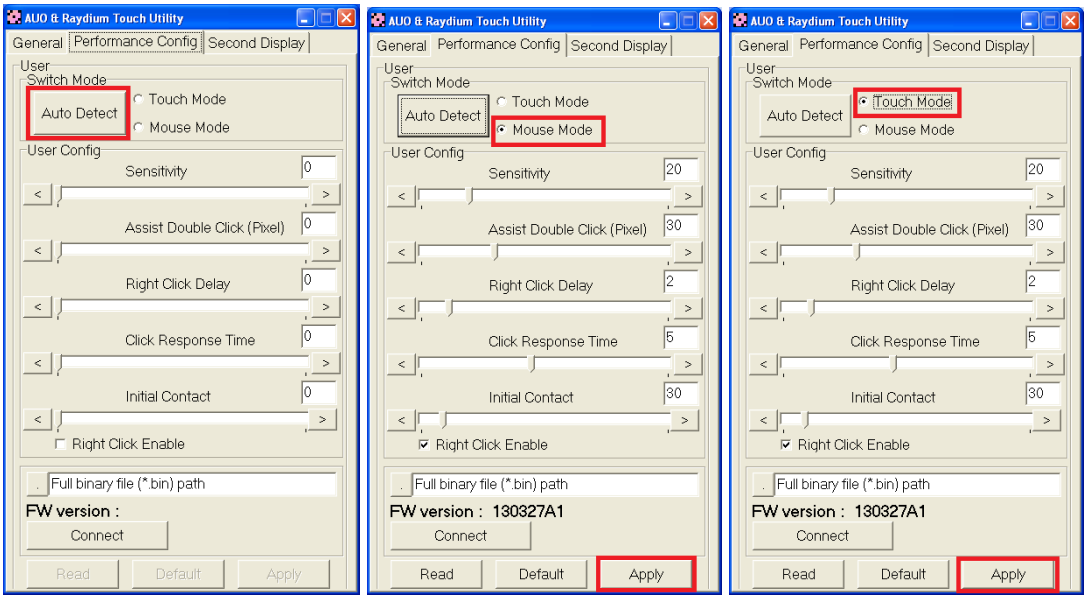
Mode of FEC P-Capacitive Touch Panel and Default Settings

The default setting of FEC P-CAP touch will be always “Mouse Mode” with Single Touch as the factory default setting. If the application requires Multi Touch (Dual Touch), FEC P-CAP touch can also be accordingly set as “Touch Mode” (Dual Touch with two fingers) via Touch Utility, but it has to be in Win7 or POS Ready 7 OS environment.

Mode setting can be done in the utility:

1. Execute the touch utility

2. Choose “Auto Detect” wait for 10 sec for connection between Touch Utility and Touch Controller, until Mouse / Touch Mode shown. If you want to switch one mode to another mode, please select the certain mode and “Apply”, then, wait the successful sign for “update firmware parameter finish!”, press “OK” to finish the mode switching.



3. Default setting includes:

Default mode: Mouse Mode

Default Sensitivity: 20

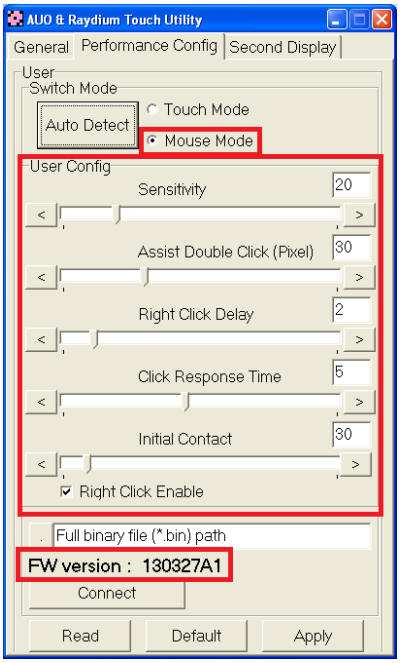
Assist Double Click (Pixel): 30 pixel square;

Right Click delay: 2 seconds

Click Response Time: 5

Initial Contact: 30

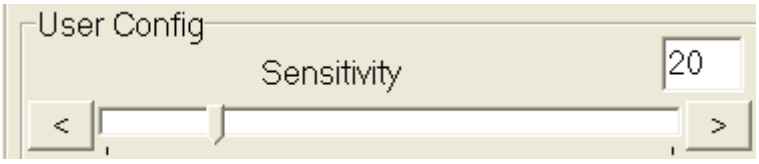
FW Version: 130327A1



P-Capacitive Touch User Configuration

The P-Capacitive Touch is relating to humidity of environment, humidity of finger tips or touching area size of finger tips. Moreover, these facts are relating with personal experience. If user requires a slightly different touch performance, it can be adjusted from the user configuration of touch utility.

1. Sensitivity (sensing performance): The value is form “1” ~ “100” ; “1” means the highest sensitive; “100” means the lowest sensitive ; default optimized value is “20”. After the Auto Detect with touch controller, please input the value (or adjust from tool bar) to adjust the proper touch sensitivity. **(Note: The highest sensing performance does not have the overall touch experience is good. Default factory setting “20” is the most optimized to fit with majority of POS environments.)**

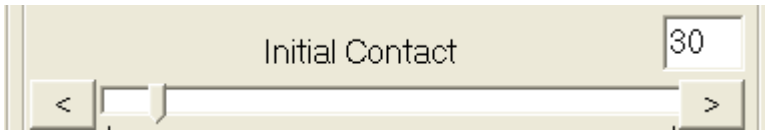


2. Assist Double Click (sensing tolerance distance between double click): The value is from “1” ~ “100” ; “1” means the smallest tolerance 1 Pixel ; “100” means biggest tolerance 100 pixels. Default optimized value is “30” Pixel. **(Note: the higher tolerance would help double click, but it might cause the touch accuracy. Default factory setting “30” is the most optimized to fit with majority of POS environments.)**

3. Right Click Delay (the duration of the mouse right click function): The value is from 1sec ~10 seconds. **(Note: the most optimized Right Click Delay Duration is 2 seconds)**

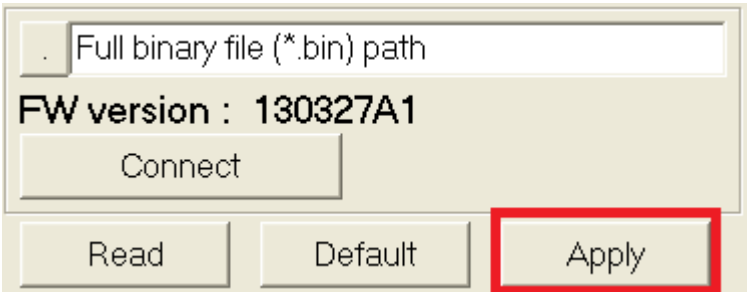
4. Click Response Time (the response ratio on touch click): The value is from 1~10. The smaller value will have rapid touch response; bigger value will have slower response. **(Note: the most optimized Click Response Time is “5”)**

5. Initial Contact (The initial time after re-upload the F/W from utility): this value is from 1~250 seconds **(Note: the most optimized Initial Time is "30" seconds)**



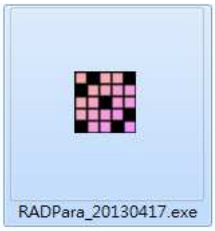
6. Tick to enable the right click function.

7. After choose the right setting, click "Apply" to finalize the settings.

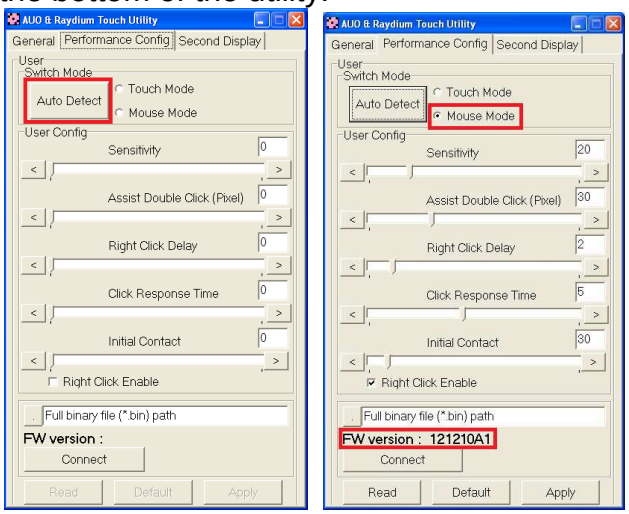


F/W Reading and F/W Update

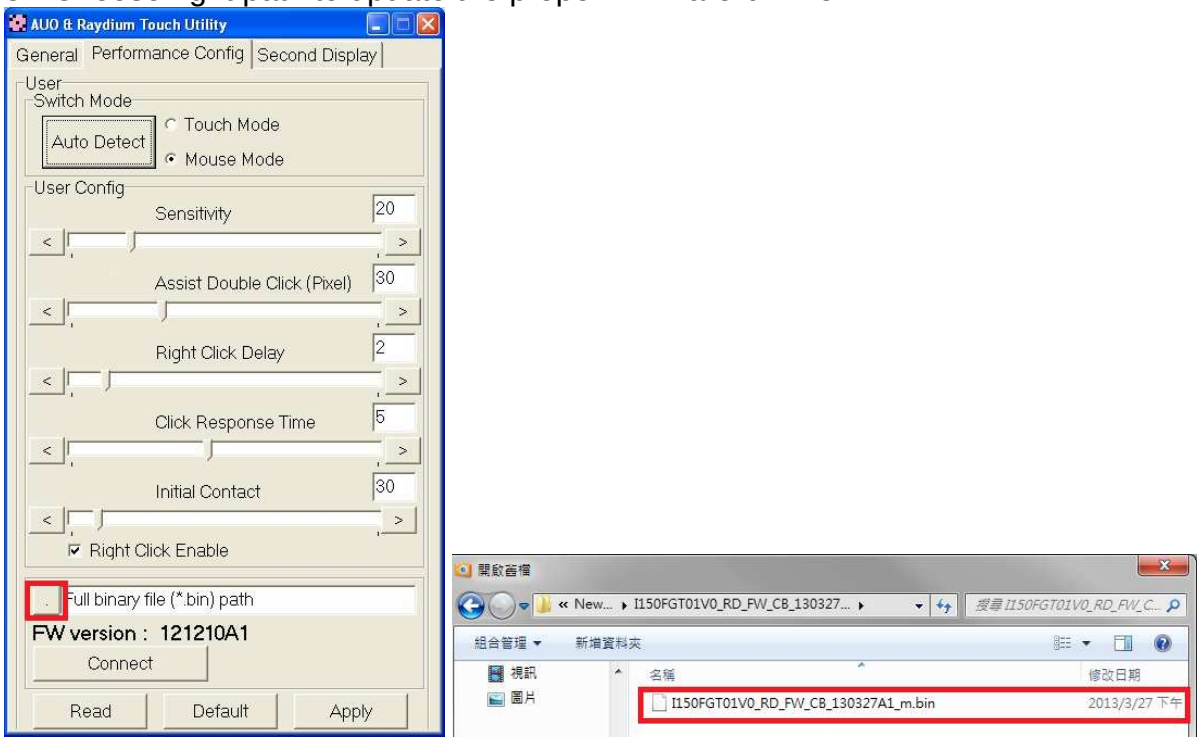
1. Execute the touch utility



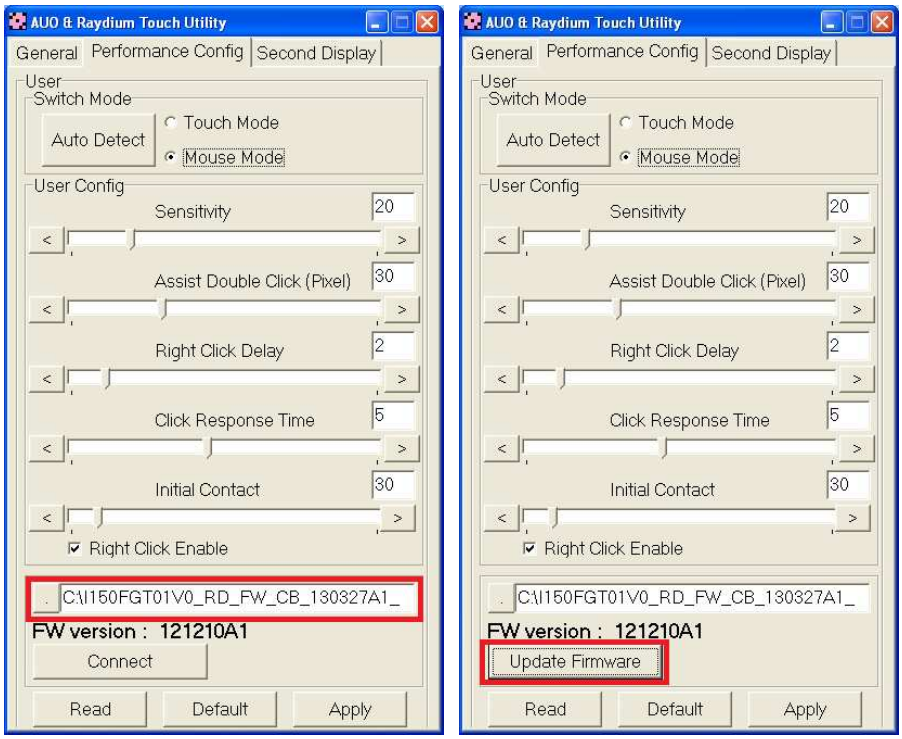
2. Choose “Auto Detect” wait for 10 sec for connection between Touch Utility and Touch Controller, until Mouse / Touch Mode shown. You can read the current F/W version (XXXXXXA1) from the bottom of the utility.



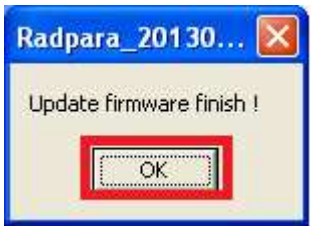
3. Choose right path to update the proper firmware bin file.



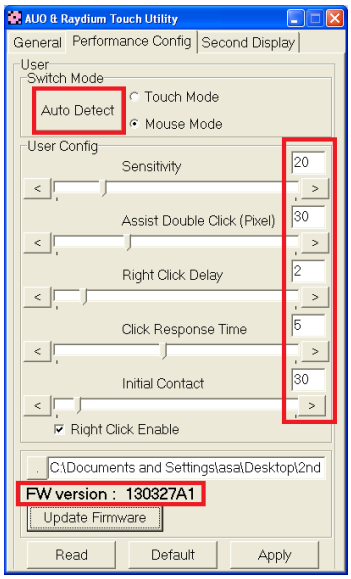
4. check the path is correct; click “update firmware”



5. wait for 10~20 second for updating F/W; click “OK” when pops out updates firmware finish window.

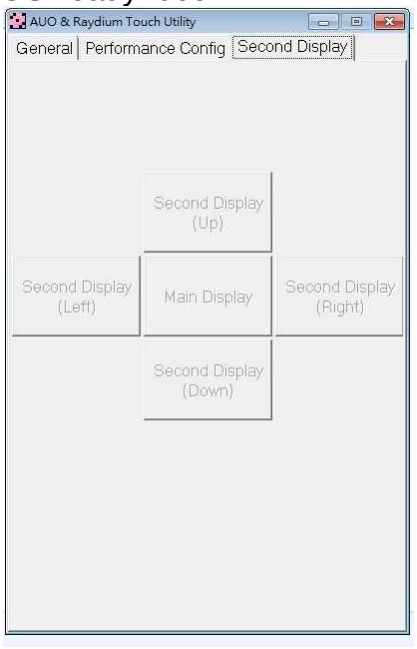


6. Re-confirm the F/W is updated: click auto detect to re-check the proper firmware is updated.



Touch Function for 2nd Screen

The current Raydium touch firmware (130327A1) can only support 2nd touch screen in touch mode of Win7 or POSReady 7 OS. The function of “Second Display” from this utility is not available for winXP or POSReady2009.



EETI TouchKit Tools Installation

EETI TouchKit Installation for Windows XP

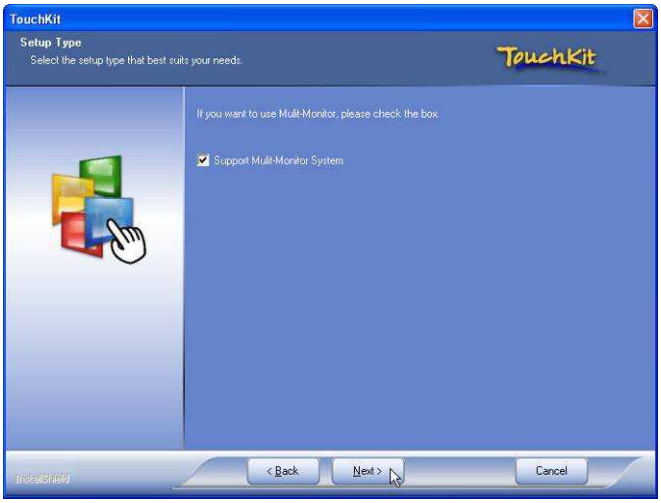
1. Down load Touch Kit for WinXP
2. Execute **Setup.exe**

3. Click **Next**

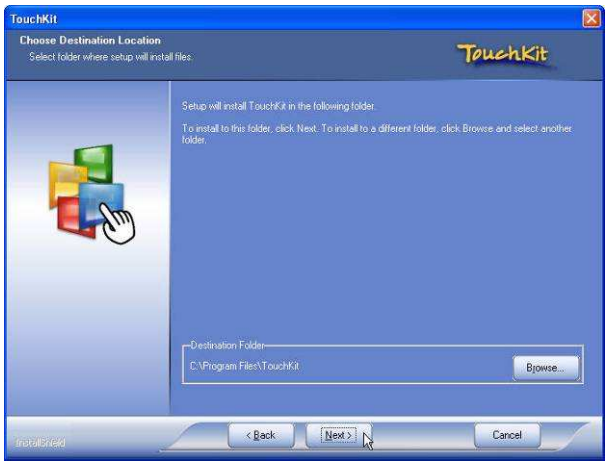
4. Choose **“None”** and Click **Next** for further installation process

5. Click **OK** to close the pop-up dialog.

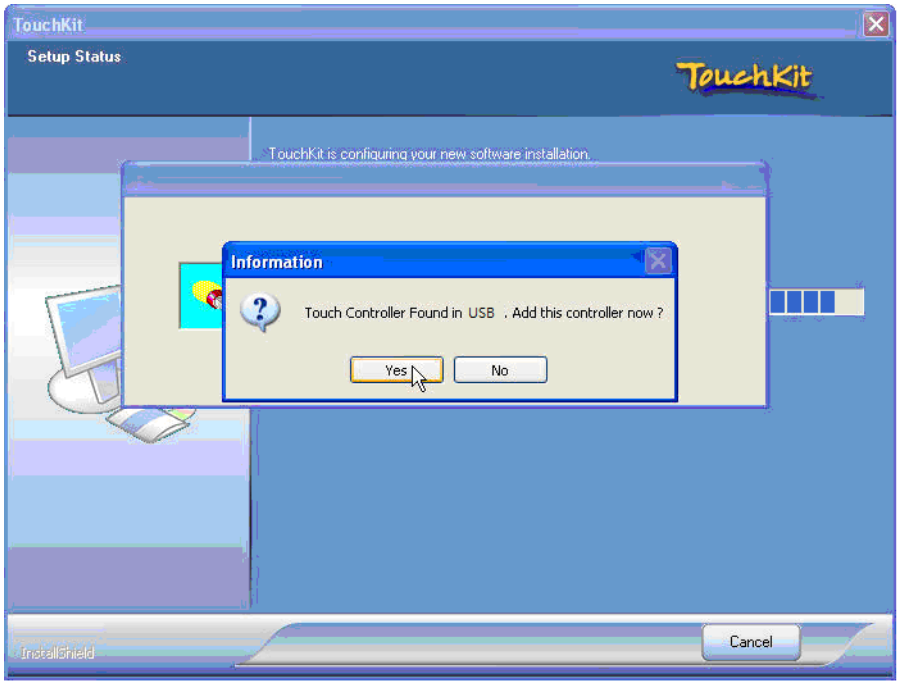
6. Click **"Support Multi-Monitor System"** and then **Next** to continue.



7. Click **Next** and choose a program folder to **"Touch Kit"**, then **"Next"**

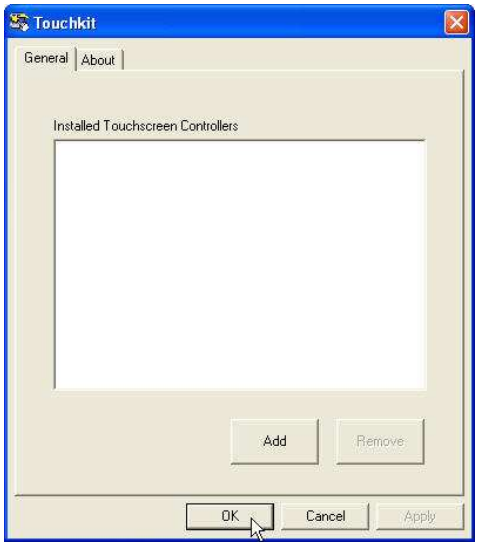


8. Touch Controller found in USB, then Click **Yes**



9. Click **OK** and turn off the computer to restart your system again.

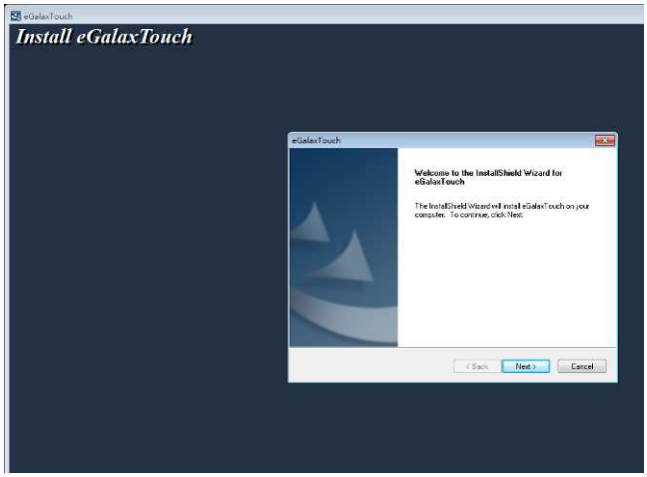
After the system finish rebooting follow the instruction to calibrate the Touch screen.

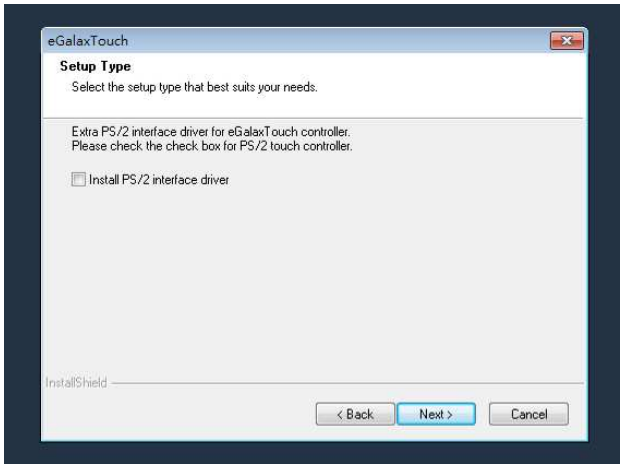


EETI TouchKit Installation for Windows 7

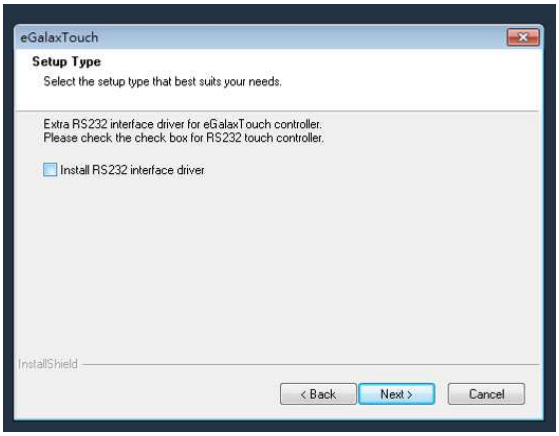
1. Down load Touch Kit for Win 7 (setup.exe)
2. Execute **Setup.exe**

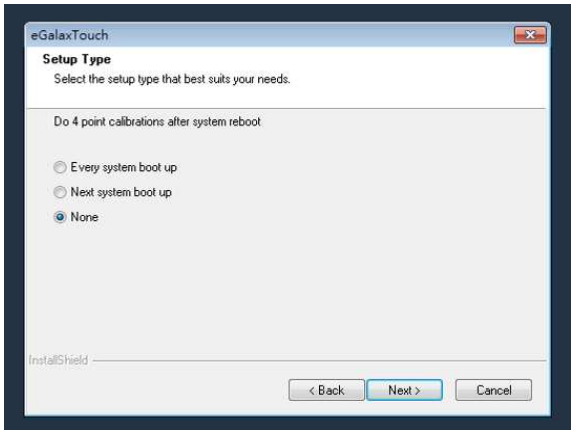
3. Click **Next**



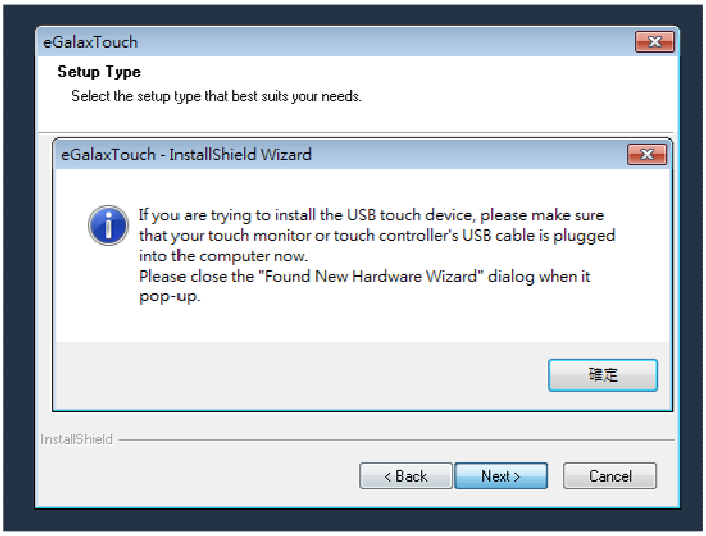


4. Un-tick “Install RS232 interface driver” and Click “Next” to go for further process.

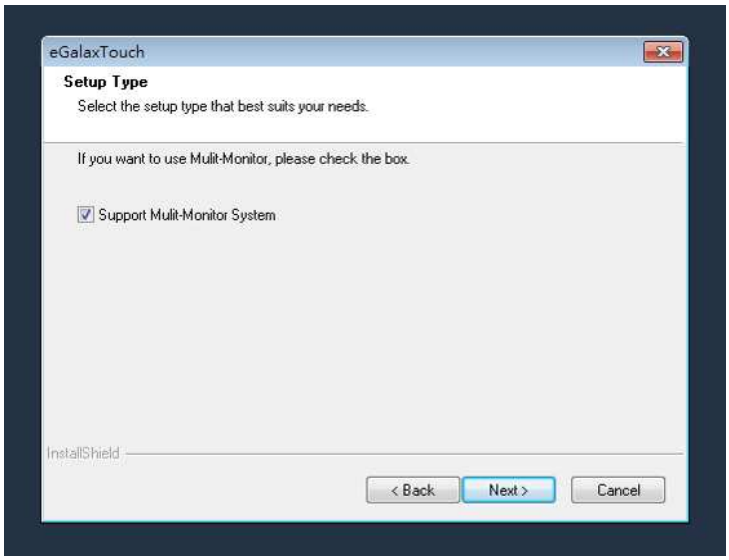




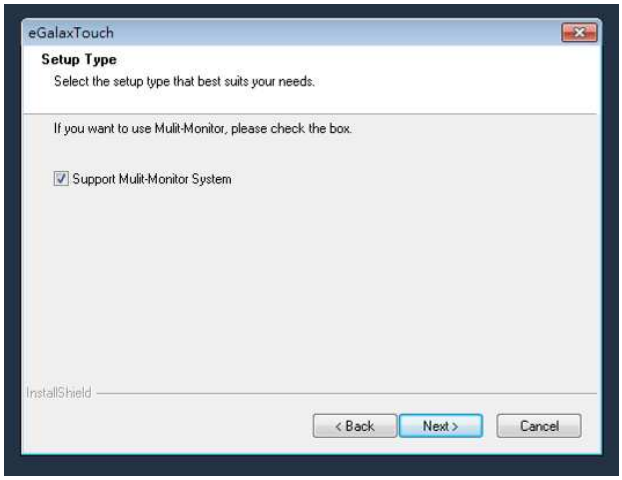
5. Click “Yes” and confirm the USB touch controller is plugged.

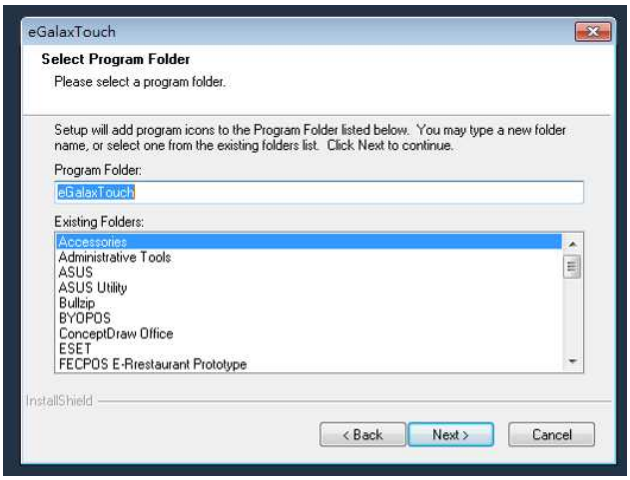


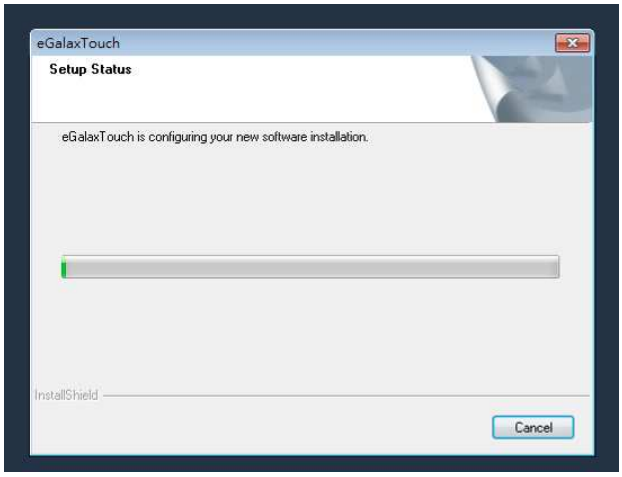
6. Click **“Support Multi-Monitor System”** and then **Next** to continue.



7. Click **Next**

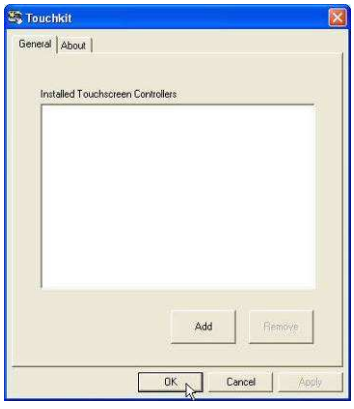






8. Click **OK** and turn off the computer to restart your system again.

After the system finish rebooting follow the directions to calibrate the Touch screen.



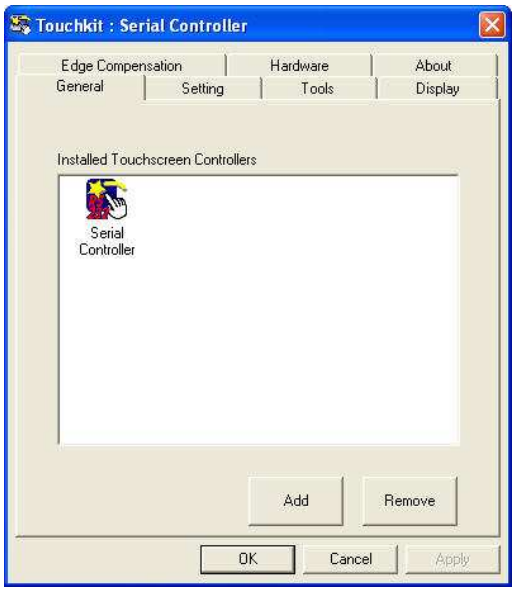
TouchKit Control Panel

This section explains the different options in the TouchKit control Panel.

General tab

The general tab allows you to:

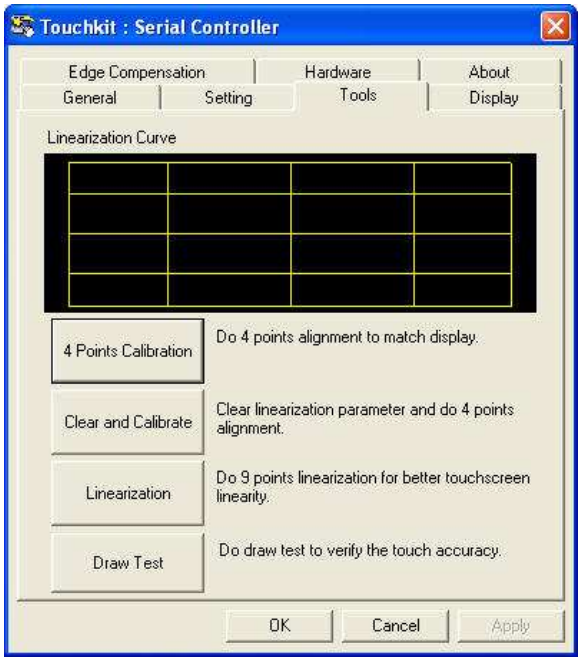
- Manage the touch screen controller you installed.



Tools tab

The tools tab allows you to:

- Calibrate the touch screen with the **4 Points Calibration** button.



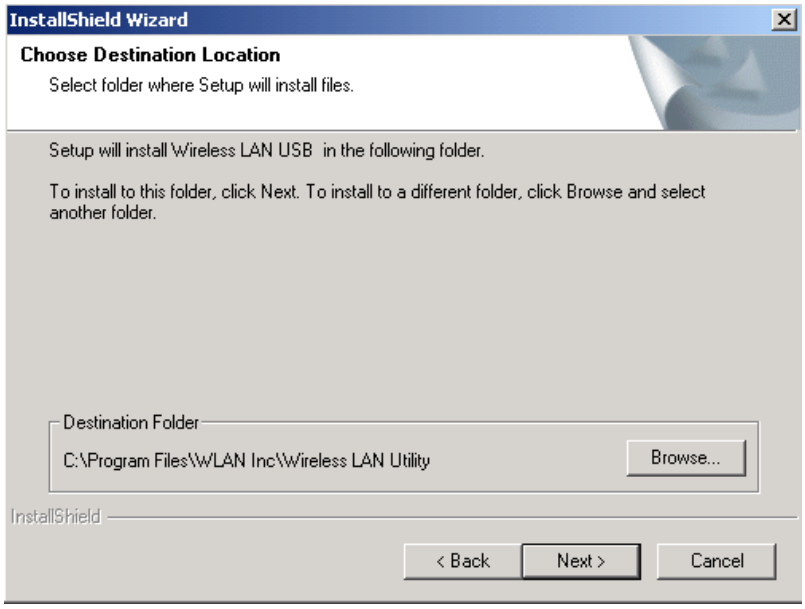
Wireless LAN Driver Installation

Wireless LAN Driver Installation for all Windows Operating Systems (Optional)

1. Download drivers from website

2. Run **Setup.EXE**

3. Click **Next**



Chapter 4

Specifications

AP-3435 Specifications

Aer POS		AP-3435 Fan Less	
Main Specifications	Chipset	Intel Atom	
	Processor	D525 1.8G	
	Memory	DDR3 Standard 1GB, Max 4GB	
	Power Supply	12V 90W	
	Thermal	Fan less	
	Storage Device	1 x 2.5” SATA Driver Bay	
	Speakers	Internal Speaker 2W x 2	
Touch Display	Display Design	15” True Flat (Ultra Slim) Bezel Free	
	Touch	Projective-Capacitive (Tempered Glass)	5W Resistive
	Backlight	LED	CCFL
	Brightness	350 nits	250 nits
	Backlight MTBF	50 K hours	30 K hours
Peripherals & Optionals	MSR	Track 1/2/3 , USB interface	
	Finger Print Reciever	Optical Finger Print Receiver, USB interface	
	RFID Reader	13.56M Hz RFID reader , USB interface	
	I - Button Reader	USB interface	
	Optional COM Port	Additional COM 3 & COM 5	
	WireLess LAN	802.11.b.g.n wireless LAN , USB interface	
	VFD	(Integration Type) 20x2 (9mm) Character Mode	
	LCM	(Integration Type) 20 x 2 Character Mode (Integration Type) 240x64 Graphic Mode	
	2nd Display	(Integration Type) 11.6” / 15” 2nd Monitor	
	Brochure	B5 Brochure Bracket	

Chapter 5

Troubleshooting

Please note that the following troubleshooting guide is designed for people with strong computer hardware knowledge or Engineers and Maintenance.

Touch Panel Does Not Work

A) Check “Touch Display Module” is connected well with terminal.

B) Check HID USB touch device is detected by OS.

C) (Resistive Touch) Check if the EETI driver or the TouchKit driver has been properly installed. Or try to re-install again (Please refer to the EETI driver and touch kit installation).

D) (Capacitive Touch) Check if the FEC-AUO Capacitive touch is automatically detected by Windows 7, or properly installed the touch driver in Windows XP.

E) Check well cabling between touch panel and touch controller

F) (Capacitive Touch Calibration) Reboot the system, and the Capacitive Touch can be calibrated automatically.

OSD Panel Cannot Work Precisely

A) Please touch each single OSD button for more than two seconds in order to trigger the function.

B) Make sure the finger is not touching more than one button each time.

Cannot Detect SATA Storage HDD/SSD

A) Make sure storage device is well connected in the Sata Drive Bay.

B) HDD power cable is not connected properly to the main board or it could be defective.

C) Check CMOS setup, set SATA HDD to Auto Detect.

D) On-board SATA port could be defective.

PS/2 Keyboard Is Not Functioning Normally

A) Make sure the keyboard is properly connected to the PS/2 keyboard port before the system is powered up.

B) Check that the LED on the keyboard goes on then off after power on. If yes, the keyboard is getting power correctly.

C) The main board could be defective.

LAN Is Not Functioning Properly

A) Check if the LAN driver is installed properly.

B) Check if there are any IRQ conflicts.

C) Check if the RJ45 cable is properly connected.

D) The on-board LAN chip could be defective.

COM1 ~ COM5 Are Not Functioning Properly

A) Check if the I/O ports are enabled in the CMOS setup.

B) Check if there are any IRQ conflicts.

C) The main board or I/O cable could be defective.

Cash Drawer Port Is Not Functioning Properly

A) Make sure the pin assignment matches between the cash drawer and the RJ11 cash drawer port.

B) Verify if the digit I/O port address and bit are correct.

C) The main board could be defective.